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21 July 1993

Mr. Don Bahnke
U.S. EPA Region VII
726 Minnesota Avenue
Kansas City, KS 66101

Subject: IAD 065218737 - Fansteel/Wellman Dynamics RCRA Closure Plan Implementation: Results of Additional Sampling Activities

Dear Mr. Bahnke:

Additional sampling around the waste chromic acid tank at Fansteel/Wellman Dynamics in Creston, Iowa was carried out by Green Environmental Services, Inc. on 18 June 1993. The activities and results of that effort are summarized as follows:

Chromic Acid Tank

Previously, the chromic acid tank, the concrete containment pad, and the containment liner were cleaned with detergent and a pressure washer. Samples of the rinse water from the tank interior, the poly liner, and the concrete pad all had levels of chromium above the EPA-approved Rinsate Target Levels as set out in the Closure Plan for this facility. The poly liner was disposed off-site as hazardous waste. On 18 June 1993, work was carried out to attempt to decontaminate the tank, but not the concrete containment unit. A sample was collected of the final rinse from the tank. Analysis indicated less than 0.02 mg/L chromium in the final rinse, as shown in Table 1. This concentration does not exceed the Rinsate Target Level for chromium. The tank will be dismantled and discarded as non-hazardous solid waste.

Chromic Acid Tank Containment Unit

As reported to you in our letter dated 24 May 1993, two borings were made through the concrete containment during the previous sampling round and the underlying soil was sampled at three depths (0-8", 8-16", 16-24") in each boring (B-6 and B-7). These six samples were all found to have chromium concentrations exceeding the EPA-approved Closure Performance Standard.

In order to determine the vertical extent of the chromium underlying the containment unit, three additional samples were collected from B-6 and B-7 on 18 June 1993. The samples were taken at discrete intervals from depths of 3-4 feet, 4-5 feet, and 5-6 feet below the bottom of the concrete pad. As indicated in Table 1, the results of analysis of these six samples shows that all six have concentrations of chromium exceeding the Closure Performance Standard in the approved Closure Plan for this facility.

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Borings were also made at three locations (B-8, B-9, and B-10) adjacent to the containment unit in order to determine the horizontal extent of the chromium release. The locations of these borings are shown on the attached drawing labeled Figure 1. B-8 was advanced manually using a 3-inch diameter stainless steel auger. B-9 and B-10 were advanced using a drill rig-mounted split-spoon sampler with a clear polycarbonate liner. Discrete samples were collected at depths of 1-2 feet, 2-3 feet, and 4-5 feet at each of these two locations. As shown on Table 1, a number of the samples had chromium concentrations exceeding the Closure Performance Standard. However, in B-10, chromium concentrations drop considerably from the surface to the deepest sampling interval such that the Closure Performance Standard is not exceeded at depths below 2 feet.

An attempt was made to push a hydropunch through B-10 to the top of the water table to collect a water sample. The water table could not be reached through B-8 or B-9 due to overhead lines and buried utilities obstructing the drill rig. Extremely tight clay was encountered before reaching the water table in B-10. When the formation would not yield enough water to sample with the hydropunch, the punch was withdrawn and the boring overdrilled using a hollow stem auger. A water sample was collected through the hollow stem using a disposable PVC bailer. **As shown in Table 1, analysis of the water sample shows that groundwater underlying the chromic acid tank and containment area has not been affected by the present of chromium in the soil.**

Following the completion of all sampling, all borings were plugged to the surface with bentonite and abandoned.

Field Blanks and Equipment Blanks

As indicated in Table 1, the trip blank and equipment blank were negative with respect to chromium content, indicating that there was no carryover from one sampling location to another and that the decontamination procedures carried out in the field were satisfactory. No interference from equipment or decontamination procedures occurred to affect the sampling results.

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TABLE 1

Analytical Results for Horizontal and Vertical Extent of Chromium in Soils and Groundwater Underlying the Waste Chromic Acid Tank

FANSTEEL/WELLMAN DYNAMICS
Creston, Iowa
June 1993

Sample	Chromium (mg/kg)	Soil Closure Performance Standard for Chromium (mg/kg)
B-6-1 (3-4')	1,100	100
B-6-2 (4-5')	3,500	100
B-6-3 (5-6')	2,800	100
B-7-1 (3-4')	2,800	100
B-7-2 (4-5')	24,000	100
B-7-3 (5-6')	30,000	100
B-8-1 (1-2')	420	100
B-8-2 (2-3')	150	100
B-8-3 (4-5')	470	100
B-9-1 (1-2')	100	100
B-9-2 (2-3')	130	100
B-9-3 (4-5')	49	100
B-10-1 (1-2')	10,000	100
B-10-2 (2-3')	24	100
B-10-3 (4-5')	22	100

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TABLE 1 (continued)

Analytical Results for Horizontal and Vertical Extent of Chromium in Soils and Groundwater Underlying the Waste Chromic Acid Tank

FANSTEEL/WELLMAN DYNAMICS
Creston, Iowa
June 1993

Sample	Chromium (mg/L)	Rinsate Target Level/Groundwater Standard for Chromium (mg/L)
B-10 Groundwater	0.05	0.1
Tank rinse	<0.02	0.1
Trip blank	<0.02	0.1
Equipment blank	<0.02	0.1

Boring logs for the sampling locations show that molding sand from the foundry was used to fill and level the area on which the slab for the containment unit was poured. Original grade is encountered approximately 6 feet below the slab at the points investigated. It is likely that the sand used for fill is placed in a wedge, with the thickest portion on the east, thinning to just a few inches on the west side of the containment unit. Sand was encountered in borings B-6 and B-7 under the slab, B-8 west of the slab, but not in B-9 on the north or B-10 on the northeast corner. The surface material is brown silty sand underlain by extremely tight grey and brown silty clay. Groundwater was encountered in the clay at approximately 17 feet of depth.

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Based on these results, the volume of material to be excavated has been estimated at 80 yd^3 for the area shown on the attached drawing labeled Figure 2. Although the vertical and horizontal extent have not been precisely defined, the removal can be planned and results of sampling the walls and floor of the excavation will determine whether additional excavation will be necessary. The presence of the tight clay and lack of impact to the groundwater indicates that the vertical movement of the plume is most likely attenuated by the clay layer. However, water may perch over the clay, providing a stimulus for spreading of the plume horizontally. The movement of the perched water table may be in any direction, regardless of the flow direction of the groundwater in the clay layer, depending on the location and pressure head of the recharge areas.

Two soil samples (B-7-2 and B-7-3) will be further analyzed for the relative concentrations of trivalent to hexavalent chromium in order to determine proper disposal for the excavated material. Although no EPA-approved method is available for this analysis, we have instructed the laboratory to extract the samples using the TCLP extraction procedure and then analyze for trivalent chromium. It appears likely that the material is almost entirely trivalent chromium and may be eligible for the exemption at 40 CFR 261.4(b)(6) which states:

> The following solid wastes are not hazardous wastes: Wastes which fail the test for the toxicity characteristic because chromium is present or are listed in subpart D due to the presence of chromium, which do not fail the test for the toxicity characteristic for any other constituent or are not listed due to the presence of any other constituent, and which do not fail the test for any other characteristic, if it is shown by a waste generator that A) the chromium in the waste is exclusively (or nearly exclusively) trivalent chromium; and B) the waste is generated from an industrial process which uses trivalent chromium exclusively (or nearly exclusively) and the process does not generate hexavalent chromium; and C) the waste is typically and frequently managed in a non-oxidizing environment.

The waste chromic acid formerly managed in this tank was discarded due to conversion to the trivalent state. That is, the material was no longer effective in the process and was scrapped precisely because the hexavalent concentration was reduced. If analysis indicates that the waste will meet the exclusion, the concrete rubble from the containment unit and the underlying soil that is excavated will be placed in the facility's on-site landfill. The conditions in the landfill can be demonstrated to be non-oxidizing. Otherwise, arrangements will be made for off-site disposal at a facility permitted by EPA or an authorized state agency to manage hazardous waste.

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Samples will be collected from the floor and four walls of the excavation to demonstrate that there is no residual chromium following the excavation. The excavation will be covered until results of the sampling are available. If no residual chromium is present above the approved Closure Performance Standard, the excavation will be backfilled. If this is not the case, additional material will be removed until such time as clean closure can be achieved or an amendment to the closure plan is determined to be necessary.

The schedule to continue this work is as follows:

Activity	Schedule
Wash, rinse, and sample chromic acid tank; Collect additional soil samples and groundwater sample:	Completed 18 June 1993
Analytical results received:	Completed 13 July 1993
Excavation, containment, disposal of waste materials; Collect wall and floor samples from excavation:	Week of 9 August 1993
Analytical results received:	Week of 6 Sept. 1993
If clean closure achieved, Closure Certification submittal:	Week of 4 Oct. 1993

Sincerely,

GREEN ENVIRONMENTAL SERVICES, INC.

Carol E Wilson

Carol E. Wilson, E.I.T.
Project Manager

cc: Carl Vass
Mike Mocniak

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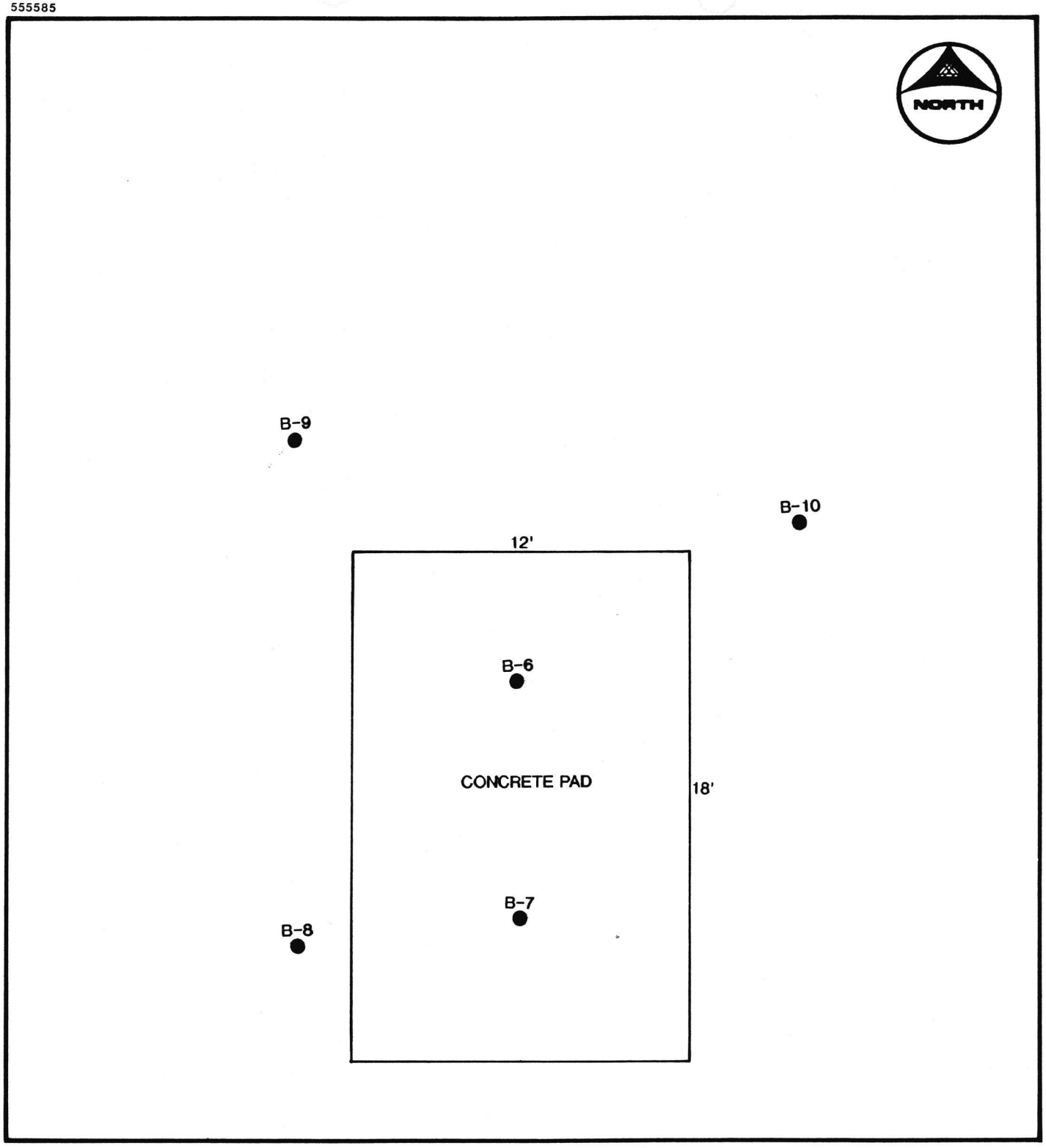

FIGURE 1

SAMPLE LOCATIONS
FORMER WASTE CHROMIC ACID TANK

FANSTEEL/WELLMAN DYNAMICS

CRESTON, IOWA
JULY, 1993

Green Environmental Services, Inc.

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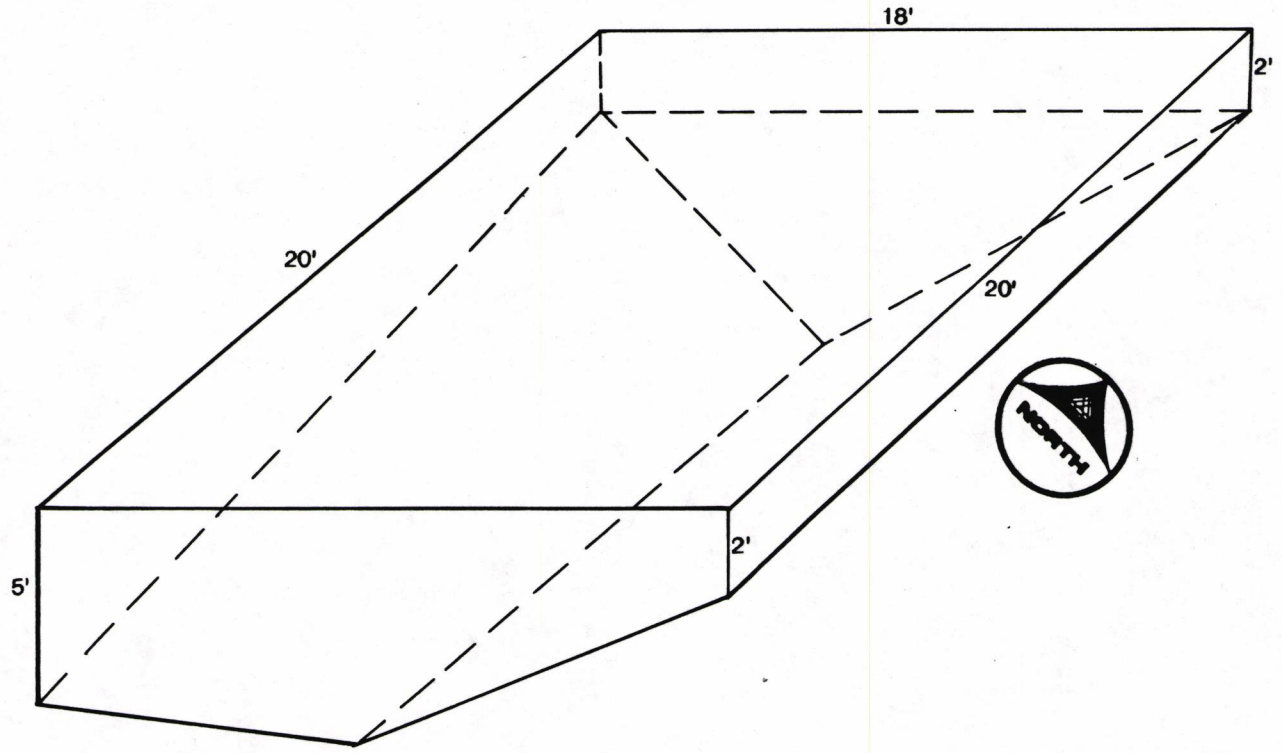

FIGURE 2

EXCAVATION ZONE
FORMER WASTE CHROMIC ACID TANK

FANSTELL/WELLMAN DYNAMICS

CRESTON, IOWA
JULY, 1993

Green Environmental Services, Inc.

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